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United States Department of Agriculture,

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RED CLOVER (*Trifolium pratense*).

Red clover is a short-lived perennial, rarely lasting more than two years, although strains have been developed which last considerably longer. Frequently the stands may be kept up by allowing the clover to reseed itself. Red clover is grown throughout the northeastern quarter of the United States as far west as east-central Kansas, in the northern Rocky Mountain region, and in the upper Pacific coast region.

It is excellent for pasture, hay, and soiling. As a soil improver in general farming, red clover is probably without a rival. In rotations it can, in the northeastern fourth of the United States, be made to precede or follow almost any field crop. Besides yielding from 1 to 2 tons of hay per acre it leaves a great deal of residue in the soil in the form of vegetable matter. This not only adds available plant food, but also improves the texture and mechanical condition of the soil.

Varieties.—There are two varieties on the market, ordinary or medium red and mammoth red clover. The latter is sometimes known as Sapling, Giant, Pea Vine, or Soiling clover. Mammoth clover is larger and coarser and matures from two to three weeks later than the ordinary clover. For this reason it is often preferred for seeding with timothy. It matures but one crop a year. In appearance the seeds of these two varieties are practically identical, so that one is never sure of the kind planted until it is well grown.

Soil requirements.—Red clover will grow successfully on a large variety of soils. Those best suited to its growth are deep, well-drained clay loams and limestone soils, but in sections of frequent freezing and thawing in early spring, where this type is not well drained, the clover is liable to heave out.

Moist sandy soils well supplied with humus also produce good crops of red clover, but it will not succeed well on dry sandy or porous gravelly soils. Unlike alsike clover it will not grow on soggy or wet peaty soils.

Sowing.—Red clover is usually sown in the early spring, though in western Oregon and Washington and in southern localities it may be sown in the fall. When sown alone, from 7 to 12 pounds of seed are used, but when seeded in a mixture, as with timothy, from 4 to 6 pounds are sufficient.

Red clover is usually sown in a small grain crop. It is a common practice to sow timothy with wheat in the autumn and then sow clover on the wheat in very early spring when the ground is honeycombed or checked by the frost. This will give the seed a light covering and usually insure germination. Where a covering can not be secured in this manner it may be done by light harrowing. It may also be sown with a spring-sown grain crop, such as oats. In this case it should always be given a light covering.

Where it is difficult to secure a stand in either of the above ways, seeding alone on well-prepared land in the spring in the North, or in the fall in the South, has given good results. In Ohio, Indiana, Illinois, Iowa, and Michigan good results have been obtained by seeding in corn at the last cultivation.

Harvesting the seed.—The largest yields of seed are secured from a medium thin stand of moderate growth. Throughout the North Atlantic States the common practice is to cut the second crop for seed. The first crop seeds less abundantly than the second. Sometimes larger yields of seed are obtained by pasturing until the first of June, and then allowing the plants to go to seed. This is particularly true of mammoth clover. The first crop should be cut when just coming into bloom if the largest possible yield of seed is specially desired.

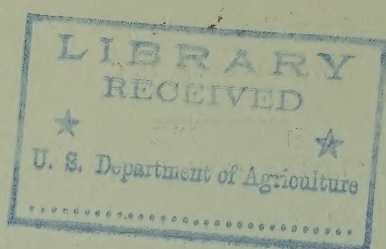
The crop for seed should be cut when nearly all the heads have turned brown or black. The cutting may be done with a mowing machine as ordinarily used for mowing hay or with a platform attachment to the cutter bar. The self-rake reaper is also used. When the mower is used the clover should be raked while damp and bunched to prevent shattering, and should be allowed to become thoroughly cured in the bunch or cock before thrashing. The thrashing is usually done with the clover huller. The common grain thrashers with the necessary attachments also give good results.

Clover sickness.—Many sections in this country no longer grow clover as easily as it was formerly grown. Observations indicate that this failure to produce successful stands of clover is not due to any one particular cause, but, rather, to a number of different causes, any one or any combination of which may react very unfavorably on the stand of clover. In some sections failures have been shown to be due to poor drainage or lack of sufficient quantities of lime in the soil. A primary cause of clover failure, which is coming more and more to be recognized, lies in the depletion of the original humus supply in the soil by repeated croppings and insufficient return to the soil by means of manure and other vegetable matter. This depletion of the humus makes the soil non-retentive of moisture in time of drought, reducing the growth of the clover plants and rendering them more liable to the attacks of any diseases to which they may happen to be subject. In severe drought or unfavorable winter weather this is apt to prove more disastrous to the stand than if the plants were in the vigorous condition rendered possible by a soil well filled with humus. It is for this reason that seeding in the spring with a nurse crop has so often failed within recent years. The lack of humus in the ground not only prevents the clover plants from making their best growth, but also renders the ground hard and nonretentive of moisture, especially when the grain crop is removed. The weakened clover plants are consequently in no condition to withstand the sudden removal of the nurse crop and frequently succumb.

J. M. WESTGATE,
Agronomist in Charge of Clover Investigations.

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